

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 (currently amended): A depth discriminating sensor for a vehicle safety device comprising:

 a wide angle lens having an aperture having an f-stop number and having a fixed focal length;

 an electronic imaging element having a pixel size;

 the f-stop number and the pixel size jointly selected to create a rear depth of field in the range from about 0.1m to about 3m; and

 a signal processor configured to discriminate between objects in the depth of field and out of the depth of field based on image sharpness and blur.

Claims 2 (original): The depth discriminating sensor of claim 1, wherein the f-stop number of the aperture is in the range from about 1.2 to about 1.8.

Claims 3 (original): The depth discriminating sensor of claim 1, wherein the f-stop number of the aperture is in the range from about 1.2 to about 1.5.

Claims 4 (original): The depth discriminating sensor of claim 1, wherein the f-stop number of the aperture is about 1.2.

Claims 5 (original): The depth discriminating sensor of claim 1, wherein the wide angle lens has a focal length in the range about 3mm and to about 14mm.

Claims 6 (original): The depth discriminating sensor of claim 1, wherein the wide angle lens has a focal length in the range from about 5mm to about 10mm.

Claims 7 (original): The depth discriminating sensor of claim 1, wherein the wide angle lens has a focal length of about 8mm.

Claims 8 (original): The depth discriminating sensor of claim 1, wherein the rear depth of field is about 1.2m.

Claims 9 (original): The depth discriminating sensor of claim 1, wherein the electronic imaging element has a pixel size in the range from about 2 μ m to about 6 μ m.

Claims 10 (original): The depth discriminating sensor of claim 1, wherein the electronic imaging element has a pixel size in the range from about 3 μ m to about 5 μ m.

Claims 11 (original): The depth discriminating sensor of claim 1, wherein the electronic imaging element has a pixel size of about 3 μ m.

Claims 12 (original): The depth discriminating sensor of claim 1, wherein an object at a distance from the sensor in the range from about 0.1m to about 2.0m is in focus.

Claims 13 (original): The depth discriminating sensor of claim 1, wherein an object at a distance from the sensor in the range from about 1.0m to about 6.0m is in focus.

Claims 14 (currently amended): A depth discriminating sensor for a vehicle safety device comprising:

a wide angle lens having an aperture having an f-stop number in the range from about 1.2 to about 1.8 and having a fixed focal length;

an electronic imaging element having a pixel size in the range from about 2 μ m to about 6 μ m;

the f-stop number and the pixel size jointly selected to create a rear depth of field in the range from about 0.1m to about 3m; and

a signal processor configured to discriminate between objects in the depth of field and out of the depth of field based on image sharpness and blur.

Claims 15 (original): The depth discriminating sensor of claim 14, wherein the f-stop number is in the range from about 1.2 to about 1.5.

Claims 16 (original): The depth discriminating sensor of claim 14, wherein the f-stop number of the aperture is about 1.2.

Claims 17 (original): The depth discriminating sensor of claim 14, wherein the wide angle lens has a focal length in the range from about 3mm to about 14mm.

Claims 18 (original): The depth discriminating sensor of claim 14, wherein the wide angle lens has a focal length in the range from about 5mm to about 10mm.

Claims 19 (original): The depth discriminating sensor of claim 14, wherein the rear depth of field is about 1.2m.

Claims 20 (original): The depth discriminating sensor of claim 14, wherein the electronic imaging element has a pixel size in the range from about 3 μ m to about 5 μ m.

Claims 21 (original): The depth discriminating sensor of claim 14, wherein the electronic imaging element has a pixel size of about 3 μ m.

Claims 22 (original): The depth discriminating sensor of claim 14, wherein an object at a distance from the sensor in the range from about 0.1m to about 2.0m is in focus.

Claims 23 (original): The depth discriminating sensor of claim 14, wherein an object at a distance from the sensor in the range from about 1.0m to about 6.0m is in focus.

Claims 24 (currently amended): A depth discriminating optical sensor for a vehicle safety device comprising:

- a wide angle lens having a focal length in the range from about 3mm and about 14mm number and having a fixed focal length;

- an aperture having an f-stop number in the range from about 1.2 to about 1.5;

- an electronic imaging element having a pixel size in the range from about 2 μ m to about 6 μ m;

- the f-stop number and the pixel size jointly selected to create a rear depth of field in the range from about 0.1m to about 3m; and

- a signal processor configured to discriminate between objects in the depth of field and out of the depth of field based on image sharpness and blur.

Claims 25 (original): The depth discriminating sensor of claim 24, wherein the aperture is about 1.2.

Claims 26 (original): The depth discriminating sensor of claim 24, wherein the wide angle lens has a focal length in the range from about 5mm to about 10mm.

Claims 27 (original): The depth discriminating sensor of claim 24, wherein the wide angle lens has a focal length of about 8mm.

Claims 28 (original): The depth discriminating sensor of claim 24, wherein the rear depth of field is about 1.16m.

Claims 29 (original): The depth discriminating sensor of claim 24, wherein the electronic imaging element has a pixel size in the range from about 3 μ m to about 5 μ m.

Claims 30 (original): The depth discriminating sensor of claim 24, wherein the electronic imaging element has a pixel size of about $3\mu\text{m}$.

Claims 31 (original): The depth discriminating sensor of claim 24, wherein an object at a distance from the sensor in the range from about 0.1m to about 2.0m is in focus.

Claims 32 (original): The depth discriminating sensor of claim 24, wherein an object at a distance from the sensor in the range from about 1.0m to about 6.0m is in focus.